

Session 5A: Changes Over Time in the Puget Sound/ Georgia Basin

Questions & Answers

Thomas Quinn

Q: If perhaps the decadal oscillations that we have been learning about the last day or so, if they couldn't be playing a fairly major role in the size of these fish due to ocean feeding conditions, and if the last couple of years when we have been getting greater numbers back, have those fish been larger—like in the Columbia system and the Puget Sound system (anecdotally my sport fishing friends tell me the fish are bigger this last year)? And is it possible there's something inherent about hatcheries in some of our hatchery practices that may be playing a role in this too?

A: All of your questions are very pertinent. The problem with this kind of work—and that's why I ended up with the need for experimentation—is we have an historical record over which many different things have been going on. There have been changes in productivity and growth of wild salmon populations in areas where there is not hatchery propagation, so declines in body size are quite common and occur in areas that are exposed to different kinds of fishery. Almost certainly some of that reflects changes in growing conditions. However, it's been documented by some of the WDFW biologists that many of the fisheries for coho salmon around here are size selective and so there is a good argument to be made that some of the declines in size reflect a genetic change. It's also true that the hatchery practices themselves can do this, and, paradoxically, because the jacks are the fastest growing individuals of a population and like most hatcheries ours religiously avoids spawning jacks in a sense we are actually selecting for slow growing individuals. The paradox of picking the large fish is actually picking the slower growing individuals, there may some selection for slow growth because of that and that would be common to many hatcheries because relatively few spawn jacks in proportion to their abundance and selective fisheries and environment. So you cannot from this data record tease those apart, we could look for correlations. The problem is that they are all happening over the same time frame. We may tease some of those things apart but of course a thing like a gill net would be selective for girth, which is largely a matter of weight as well as length, so it will not be possible to really critically test those alternatives.

Q: What has happened in the last year?

A: I didn't actually enter the year 2000 records in this particular slide, but the year 2000 fish were small. There's a certain amount of ups and downs and zigs and zags in all of these things, but no dramatic turnaround.

Wayne Palsson

Q: Have you been correlating some of your data to sediment type? An observation from our work in upper Port Orchard, over a three-year period 97-99 and 2000, there was a really hopeful trend of seeing lots of sub-adult English sole in 2000, more that we have ever seen up to 60 sub-adult about 150 millimeters long per trawl, so a hopeful sign for English sole up there.

A: No, because there really isn't a great series of bottom-type data for Puget Sound. The potential for the future is that there may be through sonar, better bottom mapping and by using back scattered data to map out the bottom type of Puget Sound. We might get there, but we are not there yet. Your comment about English sole—we have not looked at central Sound since 1995-96, so hopefully we'll hit it next year and maybe see that trend.

Helen Berry

Q: Is there anybody harvesting kelp legally or illegally? Have there been problems on Protection Island?

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A: There's a moratorium on commercial harvest of kelp in our state so one would assume there isn't a whole lot of large-scale harvest. There is personal harvest, and some people collect an awful lot of it, and you can definitely find people who collect more than they ought to. The issue which Protection Island is seeing how much it decreased over those many years, so theoretically I suppose it could happen, but that was 250 acres so it's a significant amount. It is interesting though the point you brought up: Protection Island is a US Fish & Wildlife sanctuary so you would assume there are minimal upland impacts on that bed.

Q: First, a comment. We are working at Neah Bay, and I was really struck at how deep kelp is rooted and grows. Doing a couple of dives out there, you are at 50 feet depth and kelp is growing next to you, whereas in most parts of Puget Sound it's usually at about 30 feet. So light may play a big role in visibility and limiting the extent of kelp. Another thing that struck me is when the current's running out there, you don't see kelp because it's all plastered on the bottom, and during your aerial surveys do you do it during slack tides or when there is no current to standardize for this disappearance of kelp during currents?

A: Yes, in addition to collecting our survey during summer low tides we also do it during dead low to minimize the effect of the blades turning over. And, in fact, sometimes when the survey is running late, we've collected data what we would consider too late where the current is starting to move the kelp plants, and we've had to recollect that data because of the difference that it makes. It hugely decreases the canopy area, and it's one of the things that it's nice to remember when you look at this data that there is a certain amount of error just based on issues like current.

Q: Don't you run into fog problems, the summer August lows are at 9-10 in the morning, generally speaking or earlier?

A: Yes it's always a challenge to get a relatively cloud-free, relatively wind-free low tide. We have two tide windows, so more than 10 or 11 days that we go out each day and say, OK how's the weather.

Q: Have you ever done replicate sampling to look at the variabilities in the system?

A: The only time we've done that is collecting data that we then consider was bad and throwing out, so no, we have never done replicate sampling under what we would consider to be both the replicate both being good conditions, it would really be interesting to do.

Q: We are having huge problems. BC is giving up on mapping kelp due to sea otter re-colonization, any suggestions?

A: One of the people who has actually approached us who really wants to start working with the data is the one of the biologists for sea otters at WDFW. It's a good question what effect it has on the populations.

Alan Mearns

[Question not recorded.]

A: I don't the answer to that. I would imagine that there are some data sets out there that we could find out. How representative Four-Mile Rock is of Elliot Bay, I just don't know the answer to that. It's in the downstream flow of currents from the Duwamish Waterway, so I'm assuming the Duwamish and whatever goes on the waterfront has something to do with that signal there.